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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

DEAN, RAYMOND S

ART UNIT	PAPER NUMBER
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2684

DATE MAILED: 09/30/2004

14

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/905,774

Applicant(s)

SPRATT, MICHAEL P.

Examiner

Raymond S Dean

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 84 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 84 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3,4,6,8,11,12,13.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1 – 18, 20, 24 – 30, 32, 36 – 42, 44, 48 – 60, 62 – 65, 67 – 70, and 72 – 84 are rejected under 35 U.S.C. 102(e) as being anticipated by Honda et al. (US 6,477,353).

Regarding Claim 1, Honda teaches a method of disseminating location information wherein location data items originating at known locations are passed to, and diffused between, entities by short-range communication (Column 2 lines 36 – 42, Column 6 lines 13 – 16), each location data item including a distance-related quantity indicative of an upper bound value for the distance traveled by the location data item from a specified said known location (Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 7 lines 56 – 67, Column 8 lines 1 – 3, the position information is the location data item, said position information can include distance related values that correspond to the distance of the information source to the mobile station, said mobile station uses said distance related values to calculate a distance from said information source), said entities updating the distance-related quantities of location data items they handle to take account of perceived travel of these location data items (Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 7 lines 56 – 67, Column 8 lines 1 – 3, distance can be corrected or updated based on the position of said mobile station thus if said mobile station moves a finite increment in distance the distance from the information source to said mobile station along with the corresponding distance related values will be corrected by said finite increment).

Regarding Claim 2, Honda teaches all of the claimed limitations recited in Claim 1. Honda further teaches a mobile entity that increases the distance-related quantity of the or each location data item it handles by an amount corresponding to the distance moved by the entity whilst holding the location data item (Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 7 lines 56 – 67, Column 8 lines 1 – 3, the distance can be

corrected or updated based on the position of said mobile station thus if said mobile station moves a finite increment in distance the distance from the information source to said mobile station along with the corresponding distance related values will be corrected by said finite increment).

Regarding Claim 3, Honda teaches all of the claimed limitations recited in Claim 2. Honda further teaches wherein the mobile entity is a vehicle equipped with a short – range transceiver (Column 6 lines 13 – 16, Column 6 lines 20 – 21) and an odometer (Column 6 lines 20 – 21, the mobile station can be in a car, which has an odometer), the vehicle increasing the distance-related quantity of its location data items by the distance traveled by the vehicle as indicated by said odometer (Column 7 lines 56 – 67, Column 8 lines 1 – 3, distance can be corrected or updated based on the position of said mobile station thus if said mobile station moves a finite increment in distance, which can be measured by the odometer in the car, the distance from the information source to said mobile station along with the corresponding distance related values will be corrected by said finite increment).

Regarding Claim 4, Honda teaches all of the claimed limitations recited in Claim 2. Honda further teaches wherein the mobile entity is a pedestrian carrying a mobile device with a short-range transceiver (Column 6 lines 13 – 16, Column 9 lines 49 – 52), the device effecting an estimate of the maximum distance likely to have been traveled by the pedestrian based on a speed value and elapsed time (Figure 5, Column 6 lines 29 – 32), and the device increasing the distance-related quantity of its location data

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items by said estimate of the maximum distance likely to have been traveled by the pedestrian (Column 7 lines 63 – 67, Column 8 lines 1 – 3).

Regarding Claim 5, Honda teaches all of the claimed limitations recited in Claim 4. Honda further teaches wherein said speed is the maximum speed of the pedestrian as judged over time by the device based on the time taken for the pedestrian to move between locations as determined by the location determination operation (Column 6 lines 29 – 32).

Regarding Claim 6, Honda teaches all of the claimed limitations recited in Claim 4. Honda further teaches the device: monitoring the current speed of the pedestrian based on the time taken for the pedestrian to move between locations of known position (Column 6 lines 29 – 32), and in the event of the current speed of the pedestrian exceeding said standard maximum speed, preventing the passing on of location data items from the mobile entity to other said entities (Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 8 lines 47 – 57, the mobile station can travel at a speed that would position said mobile station at a distance that prevents said mobile station from transferring information received from the information source).

Regarding Claim 7, Honda teaches all of the claimed limitations recited in Claim 1. Honda further teaches wherein the distance-related quantity of a said location data item is increased, for each transmission hop between two entities by an amount related to the transmission range of the transmitting entity (Column 5 lines 14 – 18, Column 7 lines 43 – 50, Column 7 lines 63 – 67, Column 8 lines 1 – 3, each position of the mobile station comprises a particular distance from the information source, each said distance

has a corresponding transmission distance of said information source thus the correction will take into account said transmission distance).

Regarding Claim 8, Honda teaches all of the claimed limitations recited in Claim 7. Honda further teaches a fixed range value for the transmitting entity, this range value being added by the transmitting entity to said distance-related quantity (Column 7 lines 43 – 50, Column 7 lines 63 – 67, Column 8 lines 1 – 3, each position of the mobile station comprises a particular distance from the information source, each said distance has a corresponding transmission distance of said information source thus the correction will take into account said transmission distance, said correction will be obtained by adding a fixed value if the mobile station does not move).

Regarding Claim 9, Honda teaches all of the claimed limitations recited in Claim 7. Honda further teaches incorporating a hop count for providing a measure of the distance traveled by the location data item concerned as a result of transmission hops (Column 5 lines 14 – 18, the information can hop among mobile stations thus there will be a hop count).

Regarding Claim 10, Honda teaches all of the claimed limitations recited in Claim 7. Honda further teaches wherein the increase of said distance-related quantity is a fraction of a range value for the transmitting entity (Column 7 lines 43 – 50, Column 7 lines 63 – 67, Column 8 lines 1 – 3, each position of the mobile station comprises a particular distance from the information source, each said distance has a corresponding transmission distance of said information source thus the correction will take into account said transmission distance, said transmission distance can be a fraction of a

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value), this fraction being determined by the receiving entity in dependence on the received signal strength, the receiving entity adjusting said distance-related quantity accordingly (Column 7 lines 43 – 50, Column 7 lines 63 – 67, Column 8 lines 1 – 3, each position of the mobile station comprises a particular distance from the information source, each said distance has a corresponding transmission distance of said information source thus the correction will take into account said transmission distance, said transmission distance can be a fraction of a value).

Regarding Claim 11, Honda teaches all of the claimed limitations recited in Claim 1. Honda further teaches wherein a mobile entity increases the distance-related quantity of the or each location data item it handles both by an amount corresponding to the distance moved by the entity whilst holding the location data item (Column 7 lines 63 – 67, Column 8 lines 1 – 3, the distance can be corrected or updated based on the position of said mobile station thus if said mobile station moves a finite increment in distance the distance from the information source to said mobile station will be corrected by said finite increment) and by an amount related to the transmission range of the transmitting entity in respect of one of receipt and transmission of the location data item by mobile entity (Column 7 lines 43 – 50, Column 7 lines 63 – 67, Column 8 lines 1 – 3, each position of the mobile station comprises a particular distance from the information source, each said distance has a corresponding transmission distance of said information source thus the correction will take into account said transmission distance).

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Regarding Claims 12, 24, 36, Honda teaches all of the claimed limitations recited in Claims 1, 2, 7 respectively. Honda further teaches wherein a said entity determines its location by determining a location simultaneously consistent, or most nearly consistent, with the upper bound values it knows of as a result of location data items it has received (Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 7 lines 56 – 67, Column 8 lines 1 – 3, if the mobile station does not move the distance calculated from the position information will not be corrected and thus will be consistent with the distance related values that can comprise said position information).

Regarding Claim 13, 25, 37, Honda teaches all of the claimed limitations recited in Claims 12, 24, 36 respectively. Honda further teaches wherein said entity applies one or more route constraints for how the location data items passed to the mobile entity (Column 7 lines 9 – 17, the information must be transferred from other mobile stations instead of A and B thus the route of transfer is restricted to said other mobile stations).

Regarding Claims 14, 26, 38 Honda teaches all of the claimed limitations recited in Claims 13, 25, 37 respectively. Honda further teaches applying a constraint that the said upper bound values are distances along predetermined routes from the known locations concerned (Column 2 lines 62 – 67, Column 3 lines 1 – 7, the propagation of information is limited to a specific area thus there will be specific routes for said area).

Regarding Claims 15, 27, 39 Honda teaches all of the claimed limitations recited in Claims 14, 26, 38 respectively. Honda further teaches routes on a map represented

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by map data known to the entity (Column 6 lines 20 – 25, map data comprises latitude and longitude).

Regarding Claims 16, 28, 40, Honda teaches all of the claimed limitations recited in Claims 13, 25, 37 respectively. Honda further teaches applying a constraint that the said upper bound values are distances along indeterminate routes that avoid particular zones (Column 7 lines 1 – 17, the particular zones are the high density areas, the information must be transferred from other mobile stations instead of A and B thus the route of transfer is restricted to said other mobile stations).

Regarding Claims 17, 29, 41 Honda teaches all of the claimed limitations recited in Claims 13, 25, 37 respectively. Honda further teaches wherein a received location data item includes an indication of a constraint type to be applied over at least a certain length of the associated upper bound distance value (Column 2 lines 62 – 67, Column 3 lines 1 – 7, if the distance value is restricted to a threshold value in order for the information to be transferred).

Regarding Claims 18, 30, 42 Honda teaches all of the claimed limitations recited in Claims 12, 24, 36 respectively. Honda further teaches wherein upon said entity receiving a location data item indicating an upper bound distance value to a known location for which a location data item has been previously received, one of the location data items is discarded (Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 8 lines 47 – 57, the information that is discarded can comprise distance information that has already been received a previous time if the mobile station has not moved) the discarded item being the one indicating the larger upper bound distance value to the

known location taking account of any increases due to movement of the entity after item receipt (Column 7 lines 63 – 67, Column 8 lines 1 – 3, the information that is discarded can comprise distance information that has already been received a previous time if the mobile station has not moved again).

Regarding Claims 20, 32, 44 Honda teaches all of the claimed limitations recited in Claims 12, 24, 36 respectively. Honda further teaches wherein the location of said entity is determined on two separate occasions with the later determination using location data received after the first determination whereby to enable an indication of the average direction of travel to be derived (Figure 5, Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 6 lines 18 – 19, Column 7 lines 56 – 67, Column 8 lines 1 – 3, the position detector in conjunction with the GPS system can determine the direction of travel of the mobile station, said mobile station can calculate the distance traveled by using the position information transmitted from the information source, said position information can comprise a distance value, said distance value will be corrected by the increment of said distance traveled).

Regarding Claim 48, Honda teaches a location discovery method in which an entity receives location data items from currently-nearby transmitting entities (Column 2 lines 36 – 42, Column 2 lines 62 – 67, Column 3 lines 1 – 7) each location data item including a distance-related quantity indicative of an upper bound distance to a specified known location (Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 7 lines 56 – 67, Column 8 lines 1 – 3, the position information is the location data item, said position information can include distance related values that correspond to the distance of the

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information source to the mobile station, said mobile station uses said distance related values to calculate a distance from said information source); maintains the received location data items by updating the distance-related quantity of each location data item to take account of perceived travel of the location data items (Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 7 lines 56 – 67, Column 8 lines 1 – 3, the distance can be corrected or updated based on the position of said mobile station thus if said mobile station moves a finite increment in distance the distance from the information source to said mobile station along with the corresponding distance related values will be corrected by said finite increment); and effects location determination by determining what locations are simultaneously consistent, or most nearly consistent, with the upper bound distances known to the entity (Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 7 lines 56 – 67, Column 8 lines 1 – 3, if the mobile station does not move the distance calculated from the position information will not be corrected and thus will be consistent with the distance related values that can comprise said position information).

Regarding Claim 49, Honda teaches all of the claimed limitations recited in Claim 48. Honda further teaches a mobile entity that maintains the location data items it has received by increasing the distance-related quantity of the or each location data item it handles by an amount corresponding to the distance moved by the entity whilst holding the location data item (Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 7 lines 56 – 67, Column 8 lines 1 – 3, the distance can be corrected or updated based on the position of said mobile station thus if said mobile station moves a finite increment in

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distance the distance from the information source to said mobile station along with the distance related values will be corrected by said finite increment).

Regarding Claim 50, Honda teaches all of the claimed limitations recited in Claim 49. Honda further teaches wherein the mobile entity is a vehicle equipped with a short – range transceiver (Column 6 lines 13 – 16, Column 6 lines 20 – 21) and an odometer (Column 6 lines 20 – 21, the mobile station can be in a car, which has an odometer), the vehicle increasing the distance-related quantity of its location data items by the distance traveled by the vehicle as indicated by said odometer (Column 7 lines 56 – 67, Column 8 lines 1 – 3, distance can be corrected or updated based on the position of said mobile station thus if said mobile station moves a finite increment in distance, which can be measured by the odometer in the car, the distance from the information source to said mobile station along with the distance related values will be corrected by said finite increment).

Regarding Claim 51, Honda teaches all of the claimed limitations recited in Claim 49. Honda further teaches wherein the mobile entity is a pedestrian carrying a mobile device with a short-range transceiver (Column 6 lines 13 – 16, Column 9 lines 49 – 52), the device effecting an estimate of the maximum distance likely to have been traveled by the pedestrian based on a speed value and elapsed time (Figure 5, Column 6 lines 29 – 32), and the device increasing the distance-related quantity of its location data items by said estimate of the maximum distance likely to have been traveled by the pedestrian (Column 7 lines 63 – 67, Column 8 lines 1 – 3).

Regarding Claim 52, Honda teaches all of the claimed limitations recited in Claim 51. Honda further teaches wherein said speed is the maximum speed of the pedestrian as judged over time by the device based on the time taken for the pedestrian to move between locations as determined by the location determination operation (Column 6 lines 29 – 32).

Regarding Claim 53, Honda teaches all of the claimed limitations recited in Claim 51. Honda further teaches the device: monitoring the current speed of the pedestrian based on the time taken for the pedestrian to move between locations of known position (Column 6 lines 29 – 32), and in the event of the current speed of the pedestrian exceeding said standard maximum speed, preventing the passing on of location data items from the mobile entity to other said entities (Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 8 lines 47 – 57, the mobile station can travel at a speed that would position said mobile station at a distance that prevents said mobile station from transferring information received from the information source).

Regarding Claim 54, Honda teaches all of the claimed limitations recited in Claim 48. Honda further teaches wherein said entity maintains the location data items it has received by increasing the distance-related quantity of a said location data item by an amount related to the transmission range of the transmitting entity (Column 7 lines 43 – 50, Column 7 lines 63 – 67, Column 8 lines 1 – 3, each position of the mobile station comprises a particular distance from the information source, each said distance has a corresponding transmission distance of said information source thus the correction will take into account said transmission distance).

Regarding Claim 55, Honda teaches all of the claimed limitations recited in Claim 54. Honda further teaches wherein said entity increases the distance-related quantity of a location data item immediately prior to the entity transmitting that item to another entity, this increase being by a fixed transmission range value (Column 7 lines 43 – 50, Column 7 lines 63 – 67, Column 8 lines 1 – 3, each position of the mobile station comprises a particular distance from the information source, each said distance has a corresponding transmission distance of said information source thus the correction will take into account said transmission distance, said correction will be obtained by adding a fixed value if the mobile station does not move).

Regarding Claim 56, Honda teaches all of the claimed limitations recited in Claim 54. Honda further teaches wherein the entity increases the distance-related quantity of a location data item received from another entity by a fraction of a range value for the transmitting entity (Column 7 lines 43 – 50, Column 7 lines 63 – 67, Column 8 lines 1 – 3, each position of the mobile station comprises a particular distance from the information source, each said distance has a corresponding transmission distance of said information source thus the correction will take into account said transmission distance, said correction can be obtained by adding a fraction of a value), this fraction being determined by the receiving entity in dependence on the received signal strength (Column 7 lines 43 – 50).

Regarding Claims 57, 62, 67, Honda teaches all of the claimed limitations recited in Claims 48, 49, 54 respectively. Honda further teaches wherein said entity, on encountering another entity, passes on its previously received location data items to

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that other entity (Column 9 lines 49 – 61) after updating the distance-related quantities associated with these items (Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 7 lines 56 – 67, Column 8 lines 1 – 3, distance can be corrected or updated based on the position of said mobile station thus if said mobile station moves a finite increment in distance the distance from the information source to said mobile station along with the distance related values will be corrected by said finite increment).

Regarding Claims 58, 63, 68, Honda teaches all of the claimed limitations recited in Claims 48, 49, 54 respectively. Honda further teaches wherein said entity applies one or more route constraints for how the location data items passed to the mobile entity (Column 7 lines 9 – 17, the information must be transferred from other mobile stations instead of A and B thus the route of transfer is restricted to said other mobile stations).

Regarding Claims 59, 64, 69 Honda teaches all of the claimed limitations recited in Claims 58, 63, 68 respectively. Honda further teaches applying a constraint that the said upper bound values are distances along predetermined routes from the known locations concerned (Column 2 lines 62 – 67, Column 3 lines 1 – 7, the propagation of information is limited to a specific area thus there will be specific routes for said area).

Regarding Claims 60, 65, 70, Honda teaches all of the claimed limitations recited in Claims 58, 63, 68 respectively. Honda further teaches applying a constraint that the said upper bound values are distances along indeterminate routes that avoid particular zones (Column 7 lines 1 – 17, the particular zones are the high density areas, the

information must be transferred from other mobile stations instead of A and B thus the route of transfer is restricted to said other mobile stations).

Regarding Claim 72, Honda teaches a mobile entity provided with a location discovery system comprising: a short-range receiver for receiving location data items from currently nearby transmitting entities (Column 2 lines 36 – 42, Column 6 lines 13 – 16), each location data item concerning an upper bound distance to a known location (Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 7 lines 56 – 67, Column 8 lines 1 – 3, the position information is the location data item, said position information can include distance related values that correspond to the distance of the information source to the mobile station, said mobile station uses said distance related values to calculate a distance from said information source); a memory for storing the received data items (Column 6 lines 33 – 37); a distance sub-system for measuring or estimating the distance traveled by the mobile entity (Figure 5, the position detector is the distance sub-system); an update unit for updating the received data items by increasing the upper bound distance associated with each data item by the distance measured or estimated by the distance sub-system since the item concerned was received or last updated (Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 7 lines 56 – 67, Column 8 lines 1 – 3, the distance can be corrected or updated based on the position of said mobile station thus if said mobile station moves a finite increment in distance the distance from the information source to said mobile station along with the distance related values will be corrected by said finite increment thus there will be an update unit such that said correction is conducted); and a location determination unit operative to

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determine what locations are simultaneously consistent, or most nearly consistent, with the upper bound distances known to the mobile entity (Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 7 lines 56 – 67, Column 8 lines 1 – 3, if the mobile station does not move the distance calculated from the position information will not be corrected and thus will be consistent with the distance related values that can comprise said position information thus said mobile station can determine what locations are consistent with said distant related values, thus said mobile station will comprise a location determination unit that conducts said determination).

Regarding Claim 73, Honda teaches an entity provided with a location discovery system comprising: a short-range receiver for receiving location data items from currently nearby transmitting entities (Column 2 lines 36 – 42, Column 6 lines 13 – 16), each location data item concerning an upper bound distance to a known location (Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 7 lines 56 – 67, Column 8 lines 1 – 3, the position information is the location data item, said position information can include distance related values that correspond to the distance of the information source to the mobile station, said mobile station uses said distance related values to calculate a distance from said information source); a memory for storing the received data items (Column 6 lines 33 – 37); an update unit for updating the received data items by increasing the upper bound distance associated with each data item by an amount related to the transmission range of the transmitting entity in respect of one of receipt and transmission of the location data item by the entity (Column 7 lines 43 – 50, Column 7 lines 63 – 67, Column 8 lines 1 – 3, each position of the mobile station comprises a

particular distance from the information source, each said distance has a corresponding transmission distance of said information source thus the correction will take into account said transmission distance, thus there will be an update unit that conducts said correction) and a location determination unit operative to determine what locations are simultaneously consistent, or most nearly consistent, with the upper bound distances known to the mobile entity (Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 7 lines 56 – 67, Column 8 lines 1 – 3, if the mobile station does not move the distance calculated from the position information will not be corrected and thus will be consistent with the distance related values that can comprise said position information thus said mobile station can determine what locations are consistent with said distant related values, thus said mobile station will comprise a location determination unit that conducts said determination).

Regarding Claim 74, Honda teaches a location discovery method wherein location data items originating at known locations are passed to, and diffused between, mobile entities by short-range communication (Column 2 lines 36 – 42, Column 6 lines 13 – 16), each location data item received by a mobile entity indicating a maximum distance of the entity from a said known location (Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 7 lines 56 – 67, Column 8 lines 1 – 3, the position information is the location data item, said position information can include distance related values that correspond to the distance of the information source to the mobile station, said mobile station uses said distance related values to calculate a distance from said information source), and each mobile entity prior to using a location data item for location

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determination or transferring it to another mobile entity, increasing the maximum distance indicated by the location data item to take account of movement of the mobile entity since receiving that item (Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 7 lines 56 – 67, Column 8 lines 1 – 3, the distance can be corrected or updated based on the position of said mobile station thus if said mobile station moves a finite increment in distance the distance from the information source to said mobile station along with the distance related values will be corrected by said finite increment), the mobile entity effecting location determination by finding locations simultaneously consistent with the maximum distances it knows of (Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 7 lines 56 – 67, Column 8 lines 1 – 3, if the mobile station does not move the distance calculated from the position information will not be corrected and thus will be consistent with the distance related values that can comprise said position information) and any applicable route constraints for how the location data items passed to the mobile entity (Column 7 lines 9 – 17, the information must be transferred from other mobile stations instead of A and B thus the route of transfer is restricted to said other mobile stations).

Regarding Claim 75, Honda teaches a location discovery method in which a mobile entity receives location data items from currently-nearby transmitting entities (Column 2 lines 36 – 42, Column 6 lines 13 – 16), each location data item concerning a maximum distance to a known location (Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 7 lines 56 – 67, Column 8 lines 1 – 3, the position information is the location data item, said position information can include distance related values that correspond to the distance of the information source to the mobile station, said mobile station uses

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said distance related values to calculate a distance from said information source); maintains the received data items by increasing the maximum distance associated with each data item by the actual or estimated movement of the mobile entity (Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 7 lines 56 – 67, Column 8 lines 1 – 3, the distance can be corrected or updated based on the position of said mobile station thus if said mobile station moves a finite increment in distance the distance from the information source to said mobile station along with the distance related values will be corrected by said finite increment); and effects location determination by determining what locations are simultaneously within all the maximum distances known to the mobile entity (Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 7 lines 56 – 67, Column 8 lines 1 – 3, if the mobile station does not move the distance calculated from the position information will not be corrected and thus will be consistent with the distance related values that can comprise said position information) and satisfy any other constraints applied by the mobile entity (Column 7 lines 9 – 17, the information must be transferred from other mobile stations instead of A and B thus the route of transfer is restricted to said other mobile stations).

Regarding Claim 76, Honda teaches all of the claimed limitations recited in Claim 75. Honda further teaches wherein the mobile entity, on encountering another mobile entity, passes on its previously received location data items to the other mobile entity (Column 9 lines 49 – 61) the maximum distances associated with these items having been increased to take account of the actual or estimated movement of the mobile entity passing them on (Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 7 lines

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56 – 67, Column 8 lines 1 – 3, distance can be corrected or increased based on the position of said mobile station thus if said mobile station moves a finite increment in distance the distance from the information source to said mobile station will be corrected by said finite increment).

Regarding Claims 77, 78, Honda teaches all of the claimed limitations recited in Claims 75, 76 respectively. Honda further teaches wherein the mobile entity is a vehicle equipped with a short – range transceiver (Column 6 lines 13 – 16, Column 6 lines 20 – 21) and an odometer (Column 6 lines 20 – 21, the mobile station can be in a car, which has an odometer), the vehicle increasing the maximum distances of its location data items by the distance traveled by the vehicle as indicated by said odometer (Column 7 lines 56 – 67, Column 8 lines 1 – 3, distance can be corrected or updated based on the position of said mobile station thus if said mobile station moves a finite increment in distance, which can be measured by the odometer in the car, the distance from the information source to said mobile station will be corrected by said finite increment).

Regarding Claims 79, 80, Honda teaches all of the claimed limitations recited in Claims 75, 76 respectively. Honda further teaches wherein the mobile entity is a pedestrian carrying a mobile device with a short-range transceiver (Column 6 lines 13 – 16, Column 9 lines 49 – 52), the device effecting an estimate of the maximum distance likely to have been traveled by the pedestrian based on a speed value and elapsed time (Figure 5, Column 6 lines 29 – 32), and the device increasing the maximum distances of its location data items by said estimate of the maximum distance likely to have been traveled by the pedestrian (Column 7 lines 63 – 67, Column 8 lines 1 – 3).

Regarding Claim 81, Honda teaches all of the claimed limitations recited in Claim 75. Honda further teaches applying a constraint that the said maximum distances are distances along predetermined routes from the known locations concerned (Column 2 lines 62 – 67, Column 3 lines 1 – 7, the propagation of information is limited to a specific area thus there will be specific routes for said area).

Regarding Claim 82, Honda teaches all of the claimed limitations recited in Claim 75. Honda further teaches applying a constraint that the said maximum distances are distances along indeterminate routes that avoid particular zones (Column 7 lines 1 – 17, the particular zones are the high density areas, the information must be transferred from other mobile stations instead of A and B thus the route of transfer is restricted to said other mobile stations).

Regarding Claim 83, Honda teaches a mobile entity provided with a location discovery system comprising: a short-range receiver for receiving location data items from currently nearby transmitting entities (Column 2 lines 36 – 42, Column 6 lines 13 – 16), each location data item concerning a maximum distance to a known location (Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 7 lines 56 – 67, Column 8 lines 1 – 3, the position information is the location data item, said position information can include distance related values that correspond to the distance of the information source to the mobile station, said mobile station takes into account said distance related values and calculates an average distance); a memory for storing the received data items (Column 6 lines 33 – 37); a distance sub-system for measuring or estimating the distance traveled by the mobile entity (Figure 5, the position detector is the distance

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sub-system); an update unit for updating the received data items by increasing the maximum distance associated with each data item by the distance measured or estimated by the distance sub-system since the item concerned was received or last updated (Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 7 lines 56 – 67, Column 8 lines 1 – 3, the distance can be corrected or updated based on the position of said mobile station thus if said mobile station moves a finite increment in distance the distance from the information source to said mobile station will be corrected by said finite increment thus there will be an update unit such that said correction is conducted); and a location determination unit operative to determine what locations are simultaneously within the maximum distances known to the mobile entity (Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 7 lines 56 – 67, Column 8 lines 1 – 3, if the mobile station does not move the distance calculated from the position information will not be corrected and thus will be consistent with the distance related values that can comprise said position information thus said mobile station can determine what locations are consistent with said distance related values, thus said mobile station will comprise a location determination unit that conducts said determination) and satisfy any other constraints applied by the mobile entity (Column 7 lines 9 – 17, the information must be transferred from other mobile stations instead of A and B thus the route of transfer is restricted to said other mobile stations).

Regarding Claim 84, Honda teaches a method of disseminating location information, wherein location data, including a component indicative of distance from a particular location, is passed between devices by short-range transceiver (Column 2

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lines 36 – 42, Column 2 lines 62 – 67, Column 3 lines 1 – 7, Column 6 lines 13 – 16, Column 7 lines 56 – 67, Column 8 lines 1 – 3, the position information is the location data item, said position information can include distance related values that correspond to the distance of the information source to the mobile station, said mobile station takes into account said distance related values and calculates an average distance), said distance component of the location data being increased, for each transmission hop between two devices, by an amount related to the transmission range of the transmitting device (Column 5 lines 14 – 18, Column 7 lines 43 – 50, Column 7 lines 63 – 67, Column 8 lines 1 – 3, each position of the mobile station comprises a particular distance from the information source, each said distance has a corresponding transmission distance of said information source thus the correction will take into account said transmission distance).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 19, 31, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda et al. (US 6,477,353) in view Chou (US 6,327,533).

Regarding Claims 19, 31, 43, Honda teaches all of the claimed limitations recited in Claims 12, 24, 36 respectively. Honda does not teach said entity initially indicating multiple location zones where the entity could be located, the entity seeks to determine which location zone is the most probable on the basis of one or more of the following probability indicators: the size of the location zones as compared with an expected degree of location uncertainty; the natures of the routes followed in order to arrive at the location zones from the known locations involved; a previous history of locations visited or passed through by the entity; the correspondence of sensed travel events, such as turning, with opportunities for such events along routes to the location zones.

Chou teaches an entity initially indicating multiple location zones where the entity could be located (Column 3 lines 23 – 25, Column 4 lines 23 – 26, Column 6 lines 52 - 58, the smart mobile unit (SMU) can indicate multiple areas that the object can be based on the locations of said object in the past) the entity seeks to determine which location zone is the most probable on the basis of one or more of the following probability indicators: the size of the location zones as compared with an expected degree of location uncertainty; the natures of the routes followed in order to arrive at the location zones from the known locations involved; a previous history of locations visited or passed through by the entity; the correspondence of sensed travel events, such as turning, with opportunities for such events along routes to the location zones (Column 6 lines 52 – 58, the history of the locations of the object are used to determine the most probable location when GPS data is lost).

Honda and Chou both teach a mobile station that determines the position of an object via a GPS system thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the location history method taught above by Chou in the mobile station of Honda for the purpose of maintaining an autonomous object position update when GPS data is lost as taught by Chou.

6. Claims 21 – 23, 33 – 35, 45 – 47, 61, 66, and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda et al. (US 6,477,353) in view of Pite (6,167,276).

Regarding Claims 21, 33, 45, 61, 66, 71, Honda teaches all of the claimed limitations recited in Claims 12, 24, 36, 48, 49, and 54 respectively. Honda does not teach wherein a best estimate of location is derived within an area of possible locations based on an averaging relative to vertices of that area.

Pite teaches wherein a best estimate of location is derived within an area of possible locations based on an averaging relative to vertices of that area (Figure 1, Column 4 lines 41 – 44, Column 8 lines 30 – 40).

Honda and Pite both teach a wireless system in which location of the mobile station is determined thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the averaging relative to vertices method taught by Pite in the wireless system of Honda for the purpose of providing an alternative means of locating a mobile station as taught by Pite.

Regarding Claims 22, 34, 46, Honda in view of Pite teaches all of the claimed

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limitations recited in Claims 21, 33, 45 respectively. Pite further teaches wherein the estimate is carried out by averaging of coordinate values of said vertices (Column 8 lines 30 – 40, the triangle is created from the vertices, which are averaged points of said triangle).

Regarding Claims 23, 35, 47, Honda in view of Pite teaches all of the claimed limitations recited in Claims 21, 33, 45 respectively. Pite further teaches wherein said estimate is carried out by finding the center of gravity of a polygon delimited by said vertices (Column 8 lines 30 – 40, the polygon is the triangle).

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond S Dean whose telephone number is 703-305-8998. The examiner can normally be reached on 7:00-3:30.

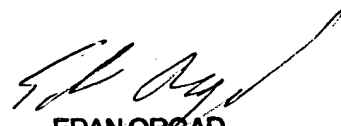
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay A Maung can be reached on 703-308-7745. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Raymond S. Dean
September 21, 2004



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